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Geomys personatus.

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Geomys personatus True, 1889

Texas Pocket Gopher

Geomys personatus True, 1889:159. Type locality Padre Island, Texas; restricted to Padre Island, 6.1 mi S Nueces County Park (27°32′N, 97°15′W), Kleberg Co., Texas (Williams and Genoways, 1981).

CONTEXT AND CONTENT. Order Rodentia, Family Geomyidae, Subfamily Geomyinae. The genus *Geomys* contains six species. Seven subspecies of *Geomys personatus* are recognized as follows:

G. p. davisi Williams and Genoways, 1981. Type locality 3 mi N, 2.8 mi W Zapata, Zapata Co., Texas.
G. p. fallax Merriam, 1895:144. Type locality S side of Nueces Bay, Nueces Co., Texas.
G. p. fuscus Davis, 1940:30. Type locality Fort Clark (Brackettville), Kinney Co., Texas.
G. p. maritimus Davis, 1940:26. Type locality Flour Bluff, 11 mi SE Corpus Christi, Nueces Co., Texas.
G. p. megapotamus Davis, 1940:27. Type locality 4 mi SE Oilton, Webb Co., Texas.
G. p. personatus True, 1889:159, see above.
G. p. streckeri Davis, 1943:508. Type locality Carrizo Springs, Dimmit Co., Texas (renaming of *G. p. minor* Davis, 1940:29, preoccupied by *G. minor* Gidley).

DIAGNOSIS. *Geomys personatus* closely resembles *G. arenarius* and *G. tropicalis* (Alvarez, 1963; Goldman, 1915). These three species differ from other *Geomys* by having a rostrum width that exceeds the length of the basioccipital (Baker and Williams, 1974; Blair et al., 1968; Davis, 1940; Hall, 1981; Hall and Kelson, 1959). *Geomys personatus* differs from *G. arenarius* and *G. tropicalis* by having a distinct sagittal crest, a U-shaped mesopterygoid fossa, and lacking a squamosal knob. Differences in zygomatic arches, interparietal shape, ratio of zygomatic breadth to basal length, ratio of mastoid breadth to basal length, and shape of border of premaxilla are additional characters that may be used to separate either *G. arenarius* or *G. tropicalis* (Alvarez, 1963). Pelage color has been described as being "Broccoli brown" according to Ridgeway's Nomenclature of Colors (True, 1889). Karyotypically *G. personatus* may be further differentiated from these two species by having a lower fundamental number (FN = 70–76) than *G. arenarius* (FN = 102) and a higher diploid number (2n = 68–72) than *G. tropicalis* (2n = 38) (Davis et al., 1971). Geographical races of *G. personatus* are highly variable. Much of the variation may be attributed to size; *G. p. personatus* is the largest, followed by *G. p. maritimus*, *G. p. megapotamus*, *G. p. fallax*, *G. p. davisi*, *G. p. streckeri*, and *G. p. fuscus*. Davis (1940) differentiated most of the types by using average total length, average length of foot, and coloration. Williams and Genoways (1981) discussed in detail univariate and multivariate analyses of cranial dimensions of *G. personatus*.

GENERAL CHARACTERS. *Geomys personatus* is a medium-sized to large-sized fossorial rodent having typical generic features such as thick-set body, external fur-lined cheek pouches, reduced eyes, reduced pinnae, strong-clawed forelegs, medium-sized and sparsely-haired tail (Fig. 1); and bisulcate upper incisors, evergrowing teeth, enamel on the anterior surface of incisors, and dental formula of i 1/1, c 0/0, p 1/1, m 3/3, total 20 (Fig. 2).

The dimensions of different subspecies of *G. personatus* vary enough to justify listing a few standard measurements of each taxa for comparative purposes. Means and extremes (in parentheses) for external and cranial measurements (in mm) of adult individuals of subspecies of *G. personatus* (males followed by females) are as follows (from Williams and Genoways, 1981): *G. p. davisi* (11 males, 13 females)—total length, 275.0 (248 to 314), 252.9 (229 to 269); length of tail, 88.4 (62 to 105), 80.0 (68 to 89); length of hindfoot, 35.5 (31.4 to 38), 33.1 (31 to 35); greatest length of skull, 49.9 (47.1 to 55.4), 44.1 (41.9 to 46.4); condylobasal length, 48.4 (46.1 to 54.2), 42.9 (40.5 to 45.0); basal length, 45.6 (43.0 to 51.5), 40.1 (37.5 to 41.8); palatal length, 32.0 (30.5 to 35.7), 27.6 (25.6 to 28.8); zygomatic breadth, 30.3 (28.3 to 33.9), 26.4 (24.0 to 28.5); mastoid breadth, 28.6 (26.8 to 31.0), 25.2 (22.5 to 27.3); squamosal breadth, 21.4 (20.6 to 23.0), 19.9 (18.2 to 21.7). *G. p. fallax* (16 males, 13 females)—total length, 271.5 (242 to 304), 241.3 (228 to 252); length of tail, 81.4 (59 to 94), 76.7 (66 to 89); length of hindfoot, 33.4 (30 to 36), 30.0 (27.5 to 32.6); greatest length of skull, 50.7 (46.8 to 55.7), 43.3 (41.0 to 45.8); condylobasal length, 49.7 (45.3 to 55.1), 42.7 (39.7 to 45.0); basal length, 46.8 (42.5 to 51.8), 40.1 (37.6 to 42.7); palatal length, 32.6 (28.7 to 36.7), 27.4 (25.8 to 29.4); zygomatic breadth, 31.5 (29.5 to 33.8), 25.9 (24.1 to 27.5); mastoid breadth, 29.1 (27.5 to 32.0), 24.9 (23.3 to 26.3); squamosal breadth, 22.0 (20.4 to 24.2), 19.4 (17.8 to 20.6). *G. p. fuscus* (two males)—total length, 235 (220, 250); length of tail, 72.5 (72, 73); length of hindfoot, 28.5 (27, 30); greatest length of skull, 41.4 (38.5, 44.3); condylobasal length, 40.8 (38.1, 43.5); basal length, 38.2 (35.4, 41.0); palatal length, 26.3 (24.1, 28.4); zygomatic breadth, 24.5 (22.7, 26.4); mastoid breadth, 22.7 (20.7, 24.6); squamosal breadth, 17.1 (16.4, 17.7). *G. p. maritimus* (four males, 11 females)—total length, 299.3 (282 to 310), 265.7 (242 to 284); length of tail, 96.5 (92 to 100), 83.8 (74 to 99); length of hindfoot, 38.5 (36 to 41), 33.2 (30 to 36); greatest length of skull, 55.3 (53.2 to 58.4), 49.5 (46.4 to 52.3); condylobasal length, 53.8 (52.1 to 56.4), 48.4 (45.6 to 50.8); basal length, 51.1 (49.6 to 53.5), 45.5 (42.6 to 48.1); palatal length, 36.1 (34.9 to 37.8), 31.6 (29.9 to 33.6); zygomatic breadth, 33.7 (32.0 to 35.2), 30.1 (28.4 to 32.8); mastoid breadth, 31.1 (28.5 to 32.7), 28.2 (27.3 to 30.5); squamosal breadth, 23.1 (21.4 to 24.1), 21.4 (20.4 to 23.2). *G. p. megapotamus* (23 males, 18 females)—total length, 288.7 (269 to 310), 257.9 (240 to 274); length

FIGURE 1. Adult female *Geomys personatus fallax* from Bee Co., Texas (photograph by Robert J. Baker).

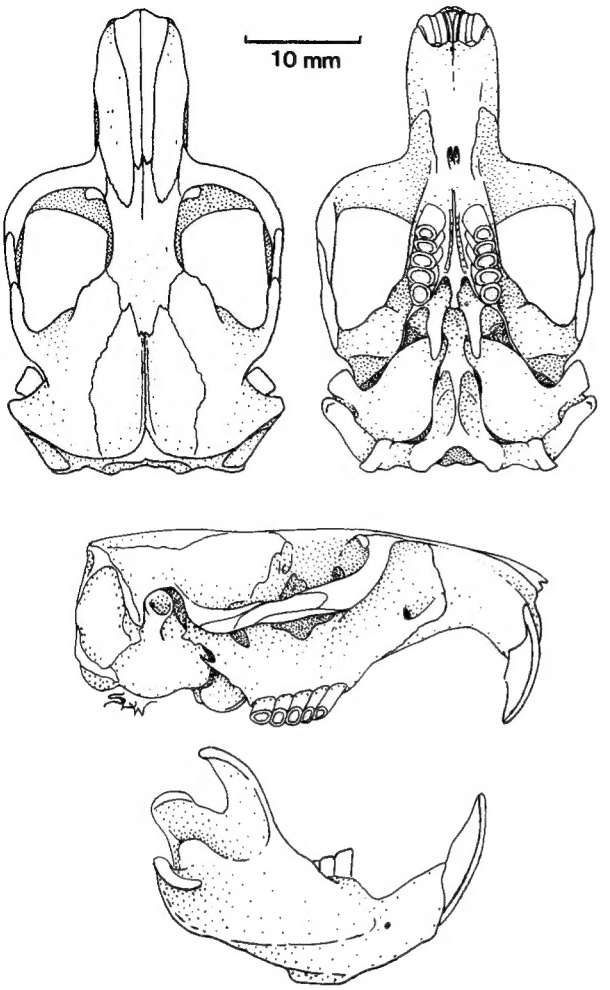

FIGURE 2. Dorsal, ventral, and lateral views of cranium and lateral view of lower jaw of a female *Geomys personatus davisi* (CM 48689, holotype).

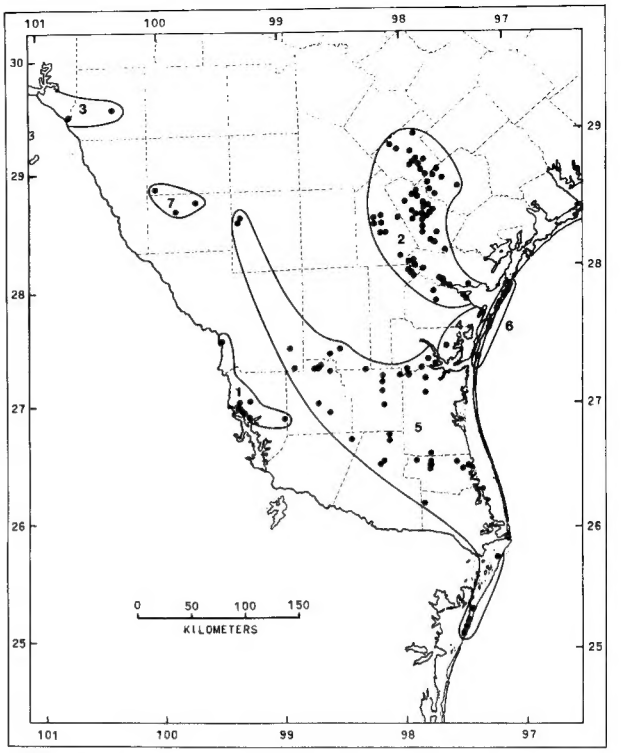

FIGURE 3. Geographic distribution of subspecies of *Geomys personatus*: 1, *G. p. davisi*; 2, *G. p. fallax*; 3, *G. p. fuscus*; 4, *G. p. maritimus*; 5, *G. p. megapotamus*; 6, *G. p. personatus*; 7, *G. p. streckeri* (from Williams and Genoways, 1981).

of tail, 87.5 (69 to 103), 76.1 (59 to 88); length of hindfoot, 36.5 (32.8 to 40), 33.5 (31 to 35); greatest length of skull, 51.7 (48.7 to 56.1), 46.3 (44.3 to 48.1); condylobasal length, 50.7 (48.0 to 55.1), 45.3 (43.3 to 46.9); basal length, 47.9 (44.6 to 52.3), 42.7 (40.6 to 44.6); palatal length, 33.4 (31.0 to 36.4), 29.5 (28.1 to 32.9); zygomatic breadth, 31.7 (28.7 to 35.5), 27.9 (26.7 to 28.9); mastoid breadth, 29.7 (26.9 to 32.9), 26.5 (25.5 to 30.0); squamosal breadth, 22.4 (20.5 to 24.4), 20.8 (19.6 to 23.4). *G. p. personatus* (37 males, 30 females)—total length, 315.3 (264 to 360), 286.9 (263 to 312); length of tail, 105.0 (86 to 125), 95.7 (80 to 110); length of hindfoot, 39.5 (33 to 43), 36.7 (32 to 39); greatest length of skull, 57.9 (54.1 to 62.5), 52.9 (50.2 to 55.3); condylobasal length, 56.8 (53.0 to 60.8), 51.7 (49.0 to 54.5); basal length, 53.6 (50.2 to 57.4), 48.2 (41.9 to 51.5); palatal length, 37.6 (34.9 to 40.2), 33.5 (32.2 to 35.9); zygomatic breadth, 35.5 (32.3 to 38.0), 31.4 (29.5 to 33.6); mastoid breadth, 32.6 (29.4 to 35.9), 29.4 (27.4 to 31.3); squamosal breadth, 23.8 (22.3 to 26.0), 22.4 (21.0 to 23.6). *G. p. streckeri* (10 males, 16 females)—total length, 249.9 (226 to 280), 225.7 (216 to 234); length of tail, 79.1 (64 to 96), 70.1 (62 to 80); length of hindfoot, 30.8 (27 to 34.4), 27.7 (24 to 30); greatest length of skull, 45.1 (42.5 to 48.4), 40.0 (37.8 to 42.3); condylobasal length, 43.7 (39.5 to 48.2), 39.2 (36.8 to 41.4); basal length, 41.4 (37.1 to 45.7), 36.9 (34.8 to 38.7); palatal length, 28.6 (25.6 to 32.2), 25.1 (23.4 to 26.7); zygomatic breadth, 27.0 (24.5 to 30.2), 23.9 (23.0 to 24.5); mastoid breadth, 25.2 (23.0 to 28.1), 22.8 (21.5 to 24.1); squamosal breadth, 19.3 (17.7 to 21.2), 18.2 (17.4 to 19.0).

DISTRIBUTION. *Geomys personatus* is generally restricted to soils in the Tamaulipan Biotic Province (Blair, 1952), specifically in southern Texas and northeastern Tamaulipas (Fig. 3). The species generally occurs on the barrier islands of Texas and Tamaulipas and on the mainland in sandy soils left by a series of Eocene and post-Eocene beaches that now run across the Lower Rio Grande Plains and more or less parallel to the present coastline (Davis, 1940; Selander et al., 1962). Deviations of this distributional pattern are probably the result of emigrations along fluvial deposits of the Rio Grande and Neuces rivers (Davis, 1940). The Rio Grande River served as an effective barrier to southern dispersal of this species, except near the mouth of the river where dispersal was probably made possible during the Wisconsin time. During this time the course of the river could have changed regularly over a long, low coastal plain (Selander et al., 1962).

Subspecies of *G. personatus* have disjunct geographical ranges. *G. p. davisi* is known from the Rio Grande River Valley of Texas, in western Webb and Zapata counties. *G. p. fallax* occurs near Nueces Bay, northwestward along the Nueces River and north as far as the vicinity of Falls City (collecting localities include Bee, Goliad, Jim Wells, Karnes, Live Oak, Nueces, and San Patricio counties, Texas). *G. p. fuscus* occurs near the Rio Grande River in Kinney and Val Verde counties, Texas. *G. p. maritimus* is restricted to sandy soils of the mainland in Kleberg and Nueces counties, between Baffin Bay and Flour Bluff. *G. p. megapotamus* has the largest range of all the subspecies. The northernmost record is 6 mi W Cotulla, La Salle Co., Texas, and the southernmost record is Boca Santa Maria (barrier island), Tamaulipas (collecting localities in Texas include Brooks, Cameron, southern Duval, northern Hidalgo, Jim Hogg, Kenedy, southern Kleberg, eastern Starr, eastern Webb and Willacy counties). *G. p. personatus* is restricted to Mustang Island and Padre Island in Kleberg and Nueces counties, Texas. *G. p. streckeri* is restricted to northern Dimmit and southern Zavala counties, Texas (Williams and Genoways, 1981).

The recognized subspecies of *G. personatus* are generally separated by barriers of unfavorable soils. Only *G. p. megapotamus* and *G. p. streckeri* could be in contact; such a contact would probably be along fluvial deposits of the Nueces River (Davis, 1940; Williams and Genoways, 1981).

FOSSIL RECORD. The tribe Geomyini, consisting of the living genera *Geomys*, *Pappogeomys*, *Orthogeomys*, and *Zygogeomys*, probably differentiated from ancestors of the tribe Thomomyini, represented by the genus *Thomomys*, during early Pliocene. The genus *Geomys* subsequently separated from other living genera of the tribe Geomyini during late Pliocene (Russell,

1968*a*). Russell (1968*a*) suggested that *Geomys* was less primitive than *Orthogeomys* and *Zygogeomys*, but not as specialized as *Pappogeomys*.

Russell (1968*a*) stated that by Sangamon time the genus *Geomys* had differentiated into the *G. bursarius* and *G. pinetis* species groups, and that *G. personatus* and *G. arenarius* probably developed from the *G. bursarius* species group in either the Wisconsin or post-Wisconsin glacial period. *Geomys tropicalis* supposedly differentiated from *G. personatus* since the Wisconsin glacial period (Baker and Williams, 1974; Selander et al., 1962). Based on genetic variation, Penney and Zimmerman (1976) suggested that *G. pinetis* diverged from *G. bursarius* during the Illinoian glacial or Yarmouth interglacial periods, followed by *G. arenarius* and later *G. personatus* during the lower Illinoian glacial and Sangamon interglacial periods. However, similar studies of genetic variation by Selander et al. (1975) indicated a closer relationship between *G. arenarius* and *G. tropicalis* to *G. personatus* than to *G. bursarius*. Such a relationship is in agreement with morphological similarities observed by Alvarez (1963).

Martin (1974*a*, 1974*b*) suggested that *G. pinetis* was closely related to *G. personatus* and speculated that both could be conspecific. However, Williams and Genoways (1975) showed that these species were distinct karyotypically and that *G. personatus* was probably more closely related to the western species of *Geomys*.

Selander et al. (1962) reported finding skeletal remains and "fossilized" burrow systems of *G. personatus* on the barrier islands of Tamaulipas. However, it is likely that these remains are not very old. Raun and Eck (1967) reported *Geomys* skeletal material occurring in archeological sites in Val Verde County, Texas; although this material was not identified to species, records of *G. personatus* in the immediate area and the lack of recent or fossil records of other species of *Geomys* there, suggest that *G. personatus* may have existed in the area 4,000 to 5,000 years ago.

FORM AND FUNCTION. Measurements given by Williams and Genoways (1981) clearly indicate that sexual dimorphism occurs in *G. personatus*. Males consistently average larger in all external and cranial measurements.

Davis (1940) and Kennerly (1954) noted a clinal variation in size among populations of *G. personatus*, with individuals tending to be smaller with increasing distance from the coast. They suggested that the smaller size was the result of more indurate soils and related selective factors.

Kennerly (1959) reported that *G. personatus* molted at least twice a year. Observations suggested that a winter pelage may at least be maintained between late October and mid-March. Individuals were observed starting to molt into summer pelage as early as late February (Kennerly, 1958*a*). Kennerly (1958*a*) discussed the progression of one individual molting from winter to summer pelage.

Kennerly (1954) suggested that pelage color of *G. personatus* was generally adaptive to soil color. However, abnormalities to this trend were noted (Kennerly, 1954). Some individuals possessed variations such as white spots, a middorsal stripe, or a pelage that had a silver coloration. One albino female was collected in Zapata County, Texas. Kennerly (1954) also discussed other abnormalities associated with the dentition and appendicular skeleton.

Descriptions of the phallus (Williams, 1982) and baculum (Kennerly, 1958*b*; Williams, 1982) were reported. The phallus is typical of the genus, having a glans that is about half the length of the distal tract and expanded apically to a collar. The collar encircles the protractile tip and ventral urethral processes. Other features such as a midventral raphe, middorsal groove, dorsal protuberances, and minute epidermal projections are normally present (Williams, 1982). The baculum is completely osseous, slightly curved, and consists of a bulbous base that narrows to form the main shaft, which is tapered and terminates with a distinctive tip (Kennerly, 1958*b*; Williams, 1982).

ONTOGENY AND REPRODUCTION. Davis (1974) suggested that mating begins as early as February based on the capture of young pocket gophers. Specimens collected in February by Allen (1891) included a 7 to 10-day-old individual, indicating an earlier breeding season. On two occasions, Kennerly (1958*a*) found an adult male and adult female sharing a burrow system in January. In both instances, the female was pregnant. Pregnant individuals were collected by Kennerly (1958*a*) during December, January, February, March, and May. The number of embryos of 11 gravid specimens averaged 3.18 and ranged from 2 to 4 (Kennerly, 1958*a*). There are probably no more than two litters produced each year by a single female (Davis, 1974). Kennerly (1958*a*) estimated that the life span of *G. personatus* was about 2 years.

Williams and Genoways (1977, 1981) characterized different age groups of pocket gophers. Juveniles typically possessed a gap between the basioccipital and basisphenoid, undeveloped sagittal crest, zygomatic breadth nearly equal to or less than mastoid breadth, and juvenile pelage. In subadults the basioccipital and basisphenoid were connected but not fused, the sagittal crests were separated by a gap, and the zygomatic breadth was usually not more than 1 mm greater than the mastoid breadth. Adults were characterized by a fused basioccipital and basisphenoid, well-developed sagittal crests that joined at the top of the cranium, and a zygomatic breadth that was always more than 1 mm greater than the mastoid breadth.

Kennerly (1958*b*) noted differences in the bacula of immature and mature *G. personatus*. In young individuals the tip of the baculum was dorsoventrally "decurved." With maturity the baculum became more massive and less decurved.

ECOLOGY. *Geomys personatus* is endemic to the Tamaulipan Biotic Province, which is characterized by a semiarid and megathermal climate (Blair, 1950). Annual precipitation ranges from 480 to 760 mm (Kennerly, 1958*a*). Predominant vegetation consists of thorny brush (Blair, 1950, 1952) some of which grows continuously throughout the year. Typical vegetation associated with *G. personatus* consists of mesquite (*Prosopis juliflora*) and various grasses such as *Paspalum*, *Cynodon*, and *Cenchrus* (Blair, 1950; Davis, 1974). *Geomys personatus* also feeds on *Acacia* and *Helianthus* (Davis, 1974; Merriam, 1895).

Geomys personatus is generally restricted to deep, sandy soils. Rocky, silt loam, or clay soils serve as formidable barriers to this species (Davis, 1940, 1974; Kennerly, 1958*a*). Davis (1940) and Kennerly (1954) suggested that soil was an important factor in the geographical variation of this species. There is a strong negative correlation between body size and diggability of soil (Davis, 1940; Kennerly, 1954).

Although *G. personatus* may have several predators, the only documented predators are the marsh hawk (*Circus cyaneus*) and domestic cat (*Felis catus*) (Merriam, 1895). Baker and Lay (1938) reported collecting species of *Dipodomys*, *Onychomys*, *Spermophilus*, and *Taxidea* with *G. personatus*. Blair (1952) and Kennerly (1958*a*) discussed additional faunal relationships. Generally, there are no major competitors of *G. personatus* in their fossorial habitat. However, the range of *Geomys attwateri* comes into contact with the range of *G. p. fallax* (Kennerly, 1958*a*; Williams and Genoways, 1981) and competition may occur in this area. Kennerly (1958*a*) found that both species had similar ecological requirements and that there were no ecological changes in areas where they occur near each other. Williams and Genoways (1981) detected possible hybrids through discriminant function analysis. Further investigation of the ecological relationship of these species is needed. Hall (1981), Hall and Kelson (1959), and Russell (1968*b*) indicated that the geographical range of *G. personatus* may overlap with that of the yellow-faced pocket gopher (*Pappogeomys castanops*) in the vicinity of Kinney and Val Verde counties, Texas. Russell (1968*b*) suggested that *G. personatus* may have replaced *P. castanops* in agricultural areas around Eagle Pass. There are no reports of these two species occurring together.

Three species of lice (Mallophaga: Trichodectidae) have been reported from different populations of *G. personatus*. *Geomydoecus texanus* was initially described as occurring on *G. p. fallax* from Flour Bluff, Nueces Co., Texas (Ewing, 1936). Revision of *G. personatus* by Davis (1940) resulted in taxonomic changes that make *G. p. maritimus* the actual host of *Geomydoecus texanus*. Price and Emerson (1971) subsequently reported this louse also occurred on *G. p. fallax*, *G. p. megapotamus*, *G. p. personatus*, and *G. tropicalis*. Price and Hellenthal (1975) gave subspecific designations to *Geomydoecus texanus*, with *G. t. texanus* occurring on subspecies of *G. personatus* and *G. t. tropicalis* occurring on *G. tropicalis*. A second species of louse, *Geomydoecus truncatus*, described by Werneck (1950), was initially reported on pocket gophers from Padre Island, making *G. p. personatus* the type host. However, Price and Emerson (1971) found *G. truncatus* only on *G. p. streckeri*. The third species of louse, *Geomydoecus dalgleishi*, is restricted to *G. p. fuscus* (Timm and Price, 1979).

The economical importance of *G. personatus* is negligible except in cultivated fields and along roads (Davis, 1974). In some areas they are pests to orchards (Merriam, 1895). Burrowing activity near and below pavement contributes to the collapse and subsequent erosion of road surfaces (Davis, 1974).

BEHAVIOR. Documentation of burrowing behavior is limited to observations on Padre Island. Davis (1974) excavated a burrow system that was over 30 m in length with many short branches leading from the primary tunnel. The burrow itself had an average horizontal diameter of 100 mm, average vertical diameter of 125 mm, and average depth of 250 mm (Davis, 1974). Kennerly (1954) commented that burrow diameter and depth is dependent on soil texture and body size of the pocket gopher. Davis (1940) verified the importance of body size on burrow diameter when he reported that the average diameter of burrows of *G. p. maritimus* was 108 mm, whereas the burrows of *G. p. streckeri* averaged 65 mm in diameter. On Padre Island burrow systems occasionally reach the water table at a depth of 50 cm (Bailey, 1895, 1905; Davis, 1974).

Most foraging is done from the burrow system where plants are pulled down into the burrow (Davis, 1974). On occasion, foraging takes place on the surface. After the burrow system has been opened, it is plugged from the inside, leaving a characteristic mound on the surface. Davis (1974) reported that a typical mound had a horizontal diameter of 45 by 60 cm, a height of 12 cm, and a weight of 6 kg. Below the mound the burrow is plugged for 1 or 2 m (Bailey, 1895, 1905; Davis, 1974; Merriam, 1895). Except for breeding periods only one individual occupies a burrow system. On Padre Island individuals are reported to form colonies that are 1.5 km or more apart (Bailey, 1895; Merriam, 1895).

Geomys personatus has capsule-shaped feces that are about 19 mm long and 7 mm in diameter. This species ingests its own fecal pellets. Individual pellets may be discarded or completely chewed and swallowed (Davis, 1974).

Davis (1974) characterized Texas pocket gophers as "ferocious isolationists." When perturbed they typically gnash their teeth and emit a wheezy sound.

GENETICS. The karyotype of *G. personatus* is highly variable among populations. Although other karyotypes are possible, the described diploid numbers and fundamental numbers (in parentheses) of the subspecies are as follows: *G. p. fallax*—68 (70), 70 (70), 70 (71); *G. p. maritimus*—70 (70); *G. p. megapotamus*—70 (72), 70 (73), 70 (74), 70 (76); *G. p. personatus*—70 (71); *G. p. streckeri*—72 (72). The X and Y chromosomes are a large biarmed element and a small acrocentric element, respectively (Davis et al., 1971).

Selander et al. (1975) examined electrophoretic data of *G. personatus* and closely related species, and found that karyotypic and genic variation have evolved independently in geomyids. Analysis of 22 proteins encoded by 23 loci indicated that for five populations of *G. personatus* sampled the mean polymorphism per population was 0.185 (range 0.09 to 0.26). Only one protein locus, *Est-2*, was polymorphic for the populations sampled. Heterozygosity per individual ranged from 0.02 to 0.08 (mean 0.044) (Selander et al., 1975). Subsequent studies by Penney and Zimmerman (1976), using 22 proteins, 22 loci, and five populations, strongly agree with the results of Selander et al. (1975). Penney and Zimmerman (1976) found mean polymorphism per population to be 0.166 (range 0.09 to 0.23), and mean heterozygosity per individual to be 0.054 (range 0.04 to 0.07).

REMARKS. The generic name *Geomys* is derived from the Greek words *geo-*, meaning "ground," and *-mys*, meaning "mouse." In Latin the species name, *personatus*, means "having a mask," which refers to "a well-defined dusky band" that occurs "between the eyes and extends thence to the nostrils," as mentioned in the original description (True, 1889). The subspecific name *davisi* is used in honor of Dr. William B. Davis for his contributions to the knowledge of *G. personatus* as well as other geomyid species (Williams and Genoways, 1981); the name *fallax* means "deceptive" in Latin, and refers to the atypical characteristics of the subspecies (Merriam, 1895); the Latin meaning for *fuscus* is "dusky" or "dark" and refers to the coloration of the subspecies; *maritimus* in Latin means "belonging to the sea," referring to the coastal geographical location of the subspecies; *megapotamus* is derived from the Greek word *mega-*, meaning "great," and *-potamus*, meaning "river," and refers to its occurrence along the lower Rio Grande River; and *streckeri* is used in memory of the Texas naturalist Mr. J. K. Strecker (Davis, 1943).

Williams and Genoways (1981) found *G. p. streckeri* and *G. p. fuscus* to be more similar to each other than to other subspecies of *G. personatus*. Furthermore, differences in cranial dimensions (Williams and Genoways, 1981), karyotypes (Davis et al., 1971), parasites (Price and Emerson, 1971; Timm and Price, 1979), phalic and bacular dimensions (Williams, 1982) make the taxonomic status of *G. p. streckeri* questionable. Further investigations may prove that *streckeri* is a distinct species. If this should happen, *G. p. fuscus* will probably follow as a subspecies of *streckeri*. However, determination of the exact relationship of *G. p. fuscus* will be difficult because very few museum specimens are available and recent investigations made to documented collecting localities have failed to provide additional specimens for analyses.

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